

CLAIMS

What is claimed is:

1. A method of partitioning a network element into a plurality of virtual network
5 elements, comprising:

providing a virtual network element manager that manages a resource of the network
element;

allocating a portion of the resource of the network element to one of the plurality of
virtual network elements; and

- 10 permitting the one of the plurality of virtual network elements to utilize only the
portion of the resource of the network element that has been allocated to the one of the
plurality of virtual network elements.

2. The method of claim 1, wherein the resource of the network element is
15 processor time, memory or ports.

3. The method of claim 1, wherein the virtual network manager manages
resources of the network element including processor time, memory and ports.

- 20 4. The method of claim 1, wherein the network element transmits data in a
network.

5. The method of claim 4, wherein the network element is a switch.

- 25 6. A network element, comprising:
a resource;
a virtual network element manager that manages the resource of the network element;
and

a virtual network element that is allocated a portion of the resource of the network element and is permitted to utilize only the portion of the resource of the network element that has been allocated to the virtual network element.

5 7. The network element of claim 6, wherein the resource of the network element is processor time, memory or ports.

8. The network element of claim 6, wherein the virtual network manager manages resources of the network element including processor time, memory and ports.

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9. The network element of claim 6, wherein the network element transmits data in a network.

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10. The network element of claim 9, wherein the network element is a switch.

11. A network element, comprising:
a resource;
a means for managing a resource of the network element; and
a means for utilizing a portion of the resource of the network element, wherein the
20 means for utilizing is permitted to utilize only the portion of the resource of the network element.

12. The network element of claim 11, wherein the resource of the network element is processor time, memory or ports.

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13. The network element of claim 11, wherein the means for managing manages resources of the network element including processor time, memory and ports.

14. The network element of claim 11, wherein the network element transmits data
30 in a network.

15. The network element of claim 14, wherein the network element is a switch.

16. A method of partitioning a network element that transmits data in a network into a plurality of virtual network elements, comprising:

5 providing a virtual network element manager that manages resources including processor time, memory and ports of the network element;

allocating a portion of each of the resources of the network element to each of the plurality of virtual network elements; and

10 permitting each of the plurality of virtual network elements to utilize only the portions of the resources of the network element that have been allocated to each of the plurality of virtual network elements.

17. The method of claim 16, wherein the network element is a switch.

15 18. A network element that transmits data in a network, comprising:
resources including processor time, memory and ports of the network element;
a virtual network element manager that manages the resources of the network element;
and

20 a plurality of virtual network elements that are each allocated portions of the resources of the network element and are permitted to utilize only the portions of the resources of the network element that have been allocated to each of the virtual network elements.

19. The network element of claim 18, wherein the network element is a switch.

25 20. A network element that transmits data in a network, comprising:
resources including processor time, memory and ports of the network element;
a means for managing the resources of the network element; and
a plurality of means for utilizing portions of the resource of the network element,
wherein the each means for utilizing is permitted to utilize only the portions of the resources
30 of the network element.

21. The network element of claim 20, wherein the network element is a switch.

22. A method of partitioning a network element that transmits data in a network into a plurality of virtual network elements, comprising:

5 receiving input as to a portion of at least one resource of the network element to allocate to one of the plurality of virtual network elements;

allocating the portion of the network element to the one of the plurality of virtual network elements; and

10 permitting the one of the plurality of virtual network elements to utilize only the portion of the at least one resource of the network element that has been allocated to the one of the plurality of virtual network elements.

23. The method of claim 22, receiving input specifying an application binary for the virtual network element.

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24. The method of claim 23, executing the application binary for the virtual network element.

25. The method of claim 22, wherein the at least one resource of the network element is processor time, memory or ports.

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26. The method of claim 22, wherein receiving input as to a portion of at least one resource includes:

25 receiving input as to a portion of processor time of the network element to allocate to one of the plurality of virtual network elements;

receiving input as to a portion of memory of the network element to allocate to one of the plurality of virtual network elements; and

receiving input as to a portion of ports of the network element to allocate to one of the plurality of virtual network elements.

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27. The method of claim 26, wherein the network element transmits data in a network.

28. The method of claim 27, wherein the network element is a switch.

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